NASA'S MISSION TO PLANET EARTH

EARTH PROBES

DATA INFORMATION SYSTEM

EOS

EARTH OBSERVING SYSTEM

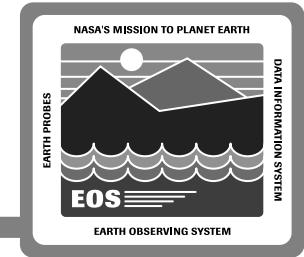# SDPS Introduction

Steve Fox

13 February 1995

Topics

- **Logistics**

- **Formal and Incremental Development Approaches**

- **PDR scope**

- **Design activities**

- **Documentation**

- **Presentation of Design**

- **Agenda**

Administrative / Facilities

- **Telephones are located in rooms 1131, 1132, and 1133 within the auditorium**

- **Messages and faxes:**
    - **Phone: (301) 925-0300 (main switchboard)**
    - **Fax: (301) 925-0327**
    - **Reference "SDPS PDR, attn: Kim Partida-Runge"**

- **Restrooms are out the auditorium main doors and to your left; follow the signs**

- **Lunch breaks are unstructured**
    - **Cafeteria in the building**
   - **List of nearby restaurants available at registration desk**

SDPS Development Approaches

SDPS Utilizes Two Development Approaches

- **Formal development**
    - 18-24 month development cycle
    - formal documentation and reviews
    - used for mission critical portions of the system
    - Subsystems: Data Server, Ingest, Planning, Data Processing

- **Incremental development**
    - 6-9 month development cycle
    - streamlined documentation and review (as-built formal documentation)
    - ongoing involvement of ECS Tirekickers + user community evaluation of prototypes / components
    - used in areas where accelerated user feedback is desired
    - Subsystems: Client, Interoperability, Data Management

SDPS PDR Scope
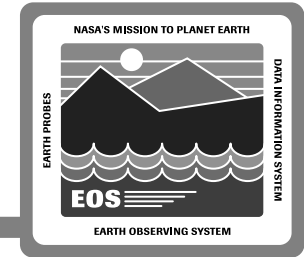
- **This review summarizes the preliminary design of the SDPS subsystems being developed on the formal track**

    - **Dataserver: Data storage, access, management, and distribution**

    - **Ingest: Data acquisition**

    - **Planning: Preplan routine data processing, schedule ad hoc processing, and dispatch and manage processing requests**

    - **Data Processing: Queuing, dispatching, and managing the execution of science algorithms**

- **For the incrementally developed SDPS subsystems, we will present**

    - **Development status / plans**

    - **Selected design topics**

   - **Demonstration of initial prototypes / components**

SDPS PDR Scope

- **We focus on the two initial ECS releases**
  - **TRMM mission preparation ("Interim Release 1", IR-1)**
  - **TRMM operations and AM-1/L-7 mission preparation ("Release A")**

- **Where applicable, we have selectively looked ahead to AM-1/L7 operations ("Release B"), and beyond, to facilitate growth and evolution e.g.,**
  - **Requirements analysis**
  - **Hardware**
  - **Distributed database design**
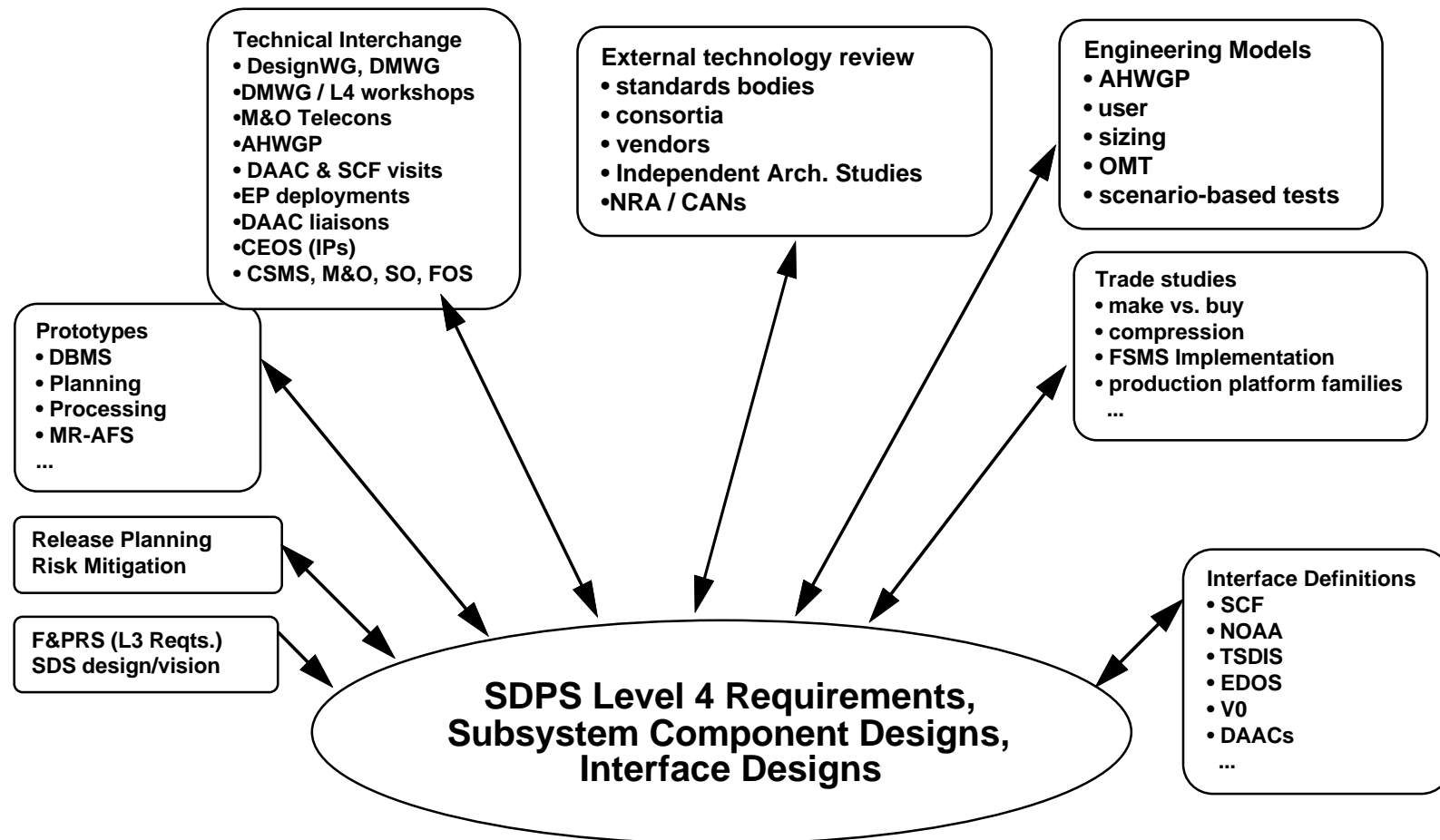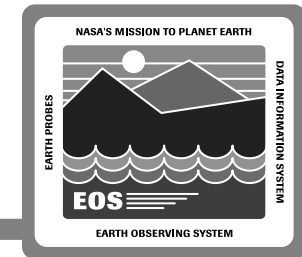 - **Cross DAAC planning / scheduling**
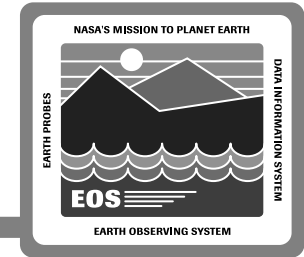
Capabilities Not in Release A
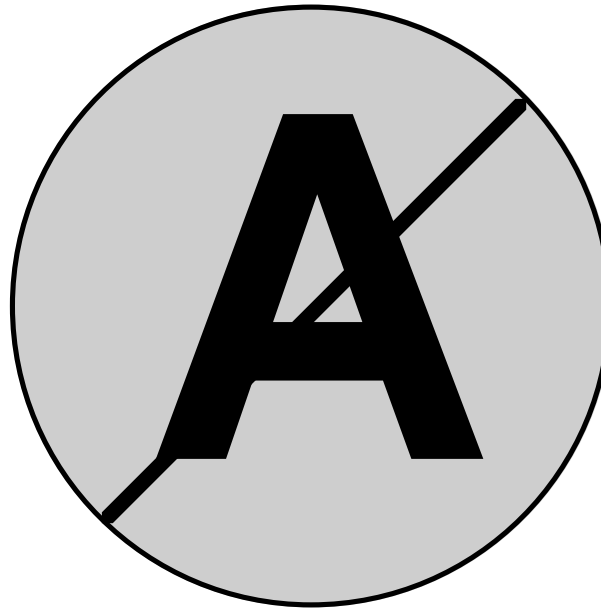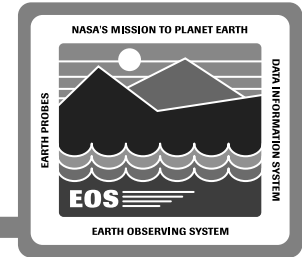
Capabilities not in Release A will be indicated by this symbol in the upper lefthand corner of the slide or next to slide bullets

PDR Design Activities

Technical Interchange
- **DesignWG, DMWG**
- **DMWG / L4 workshops**
- **M&O Telecons**
- **AHWGP**
- **DAAC & SCF visits**
- **EP deployments**
- **DAAC liaisons**
- **CEOS (IPs)**
- **CSMS, M&O, SO, FOS**

External technology review
- **standards bodies**
- **consortia**
- **vendors**
- **Independent Arch. Studies**
- **NRA / CANs**

Engineering Models
- **AHWGP**
- **user**
- **sizing**
- **OMT**
- **scenario-based tests**

Prototypes
- **DBMS**
- **Planning**
- **Processing**
- **MR-AFS**
...

Trade studies
- **make vs. buy**
- **compression**
- **FSMS Implementation**
- **production platform families**
  ...

**Release Planning
Risk Mitigation**

**F&PRS (L3 Reqts.)
SDS design/vision**

Interface Definitions
- **SCF**
- **NOAA**
- **TSDIS**
- **EDOS**
- **V0**
- **DAACs**
  ...

**SDPS Level 4 Requirements,
Subsystem Component Designs,
Interface Designs**

SDPS PDR Documentation Set

- **Segment PDR deliverables**
    - **Requirements Spec ("Level 4 Requirements") [DID 304]**
    - **Design Specification [DID 305]**
    - **Internal Interface Control Document ("Services Offered ICD")**
    - **Integration & Test Plan (Release IR-1 and A volumes)**
    - **Release and Development Plan**

- **Support materials**
    - **Reviewer's guide**
    - **Interface control documents**
    - **Science User's Guide, Part 4**

- **Previews of near-term deliverables**
    - **Database Design Specification**

Presentation of Design

Documentation

- **Object Models - static representation of system**
- **Scenarios / Event Traces - dynamic representation of system**
- **Interfaces**
- **Design components**

This Week's Presentations will focus on

- **Driving requirements / key design issues**
- **Design rationale**
- **Design approaches**
- **Design components**
- **Operations approach**
- **Key scenarios**
- ➡ **Will not present many object models**
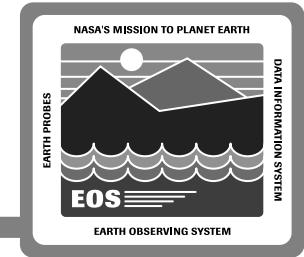
SDPS PDR Agenda - Days 1 & 2
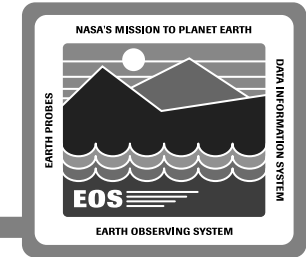
Day 1 (Mon)

SDPS PDR Introduction / Welcome	**13:00-14:00**
Design Overview	**14:00-16:30**
Daily Wrap-Up	**16:30-17:30**

Day 2 (Tue)

User and Algorithm Models	**08:30-10:00**
Data Modeling	**10:30-12:00**
Lunch	**12:00-13:00**
Data Server Subsystem Design	**13:00-17:00**
Daily Wrap-Up	**17:00-18:00**

SDPS PDR Agenda - Day 3 (Wed)

Ingest Subsystem Design	**08:30-10:00**
Planning & Data Processing Subsystem Design	**10:30-12:00**
Lunch	**12:00-13:00**
Planning & Data Processing Subsystem Design	**13:00-16:00**
Daily Wrap-Up	**16:00-17:00**

SDPS PDR Agenda - Day 4 (Thur)
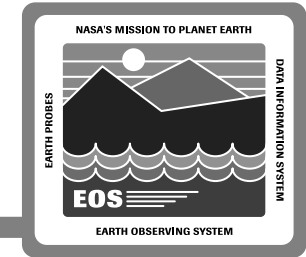
Version 0 Integration with Release A	**08:30-09:30**
Version 0 Data Migration	**09:30-10:30**
Incremental Development Status	**10:30-12:00**
Lunch	**12:00-13:00**
EP4 Demonstration	**13:00-14:00**
DAAC Operations / Configurations	**14:00-15:30**
DAAC LAN Designs	**15:30-16:00**
I&T and Development Plans	**16:00-17:00**
SDPS PDR Wrap-up	**17:00-17:15**